

열간가스성형공법을 활용한 고성형 알루미늄 샤시부품 개발

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Development of High Formability Aluminum Chassis Parts using Hot Air Forming Process

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Abstract

An application of aluminum tube material for automotive parts has been limited by their lack of formability and high manufacturing cost. In recently, however, hot air forming (HAF) process has been developed to overcome their low formability and considered as an innovative metal forming technique to increase design flexibility of aluminum alloy significantly. In this presentation, we reviewed the concept of HAF process and its control factors such as pre-forming and forming temperature et al. In addition, we designed the aluminum chassis parts, of which maximum tube expansion ratio is over 50 %, base on high design flexibility of HAF process. The forming process was simulated with FEA methods and feasibility of hot formability with different aluminum alloys was estimated.

Key Words : Hot Air Forming, Aluminum alloys, Automotive Parts, Aluminum Chassis Parts, Design Flexibility

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